COMMANDERS DIGEST

CHEMICAL WARFARE

BIOLOGICAL RESEARCH

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DoD POLICY:

CHEMICAL WARFARE & BIOLOGICAL RESEARCH

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In 1969, the President set forth the United States policy on chemical warfare of no-first-use of lethal chemical weapons and extended this policy to include incapacitating chemical agents as well. At the same time he renounced all methods of biological warfare and later extended this to include toxins. More recently, in December 1974, the U.S. Senate gave its advice and consent to the ratification of the Geneva Protocol of 1925 and the Biological Warfare Convention of 1972. The President signed these ratification documents on January 22, 1975. The United States has always adhered to the principles of the Geneva Protocol and had earlier renounced all forms of biological warfare and destroyed our stockpiles, therefore no changes are required in our research and development programs.

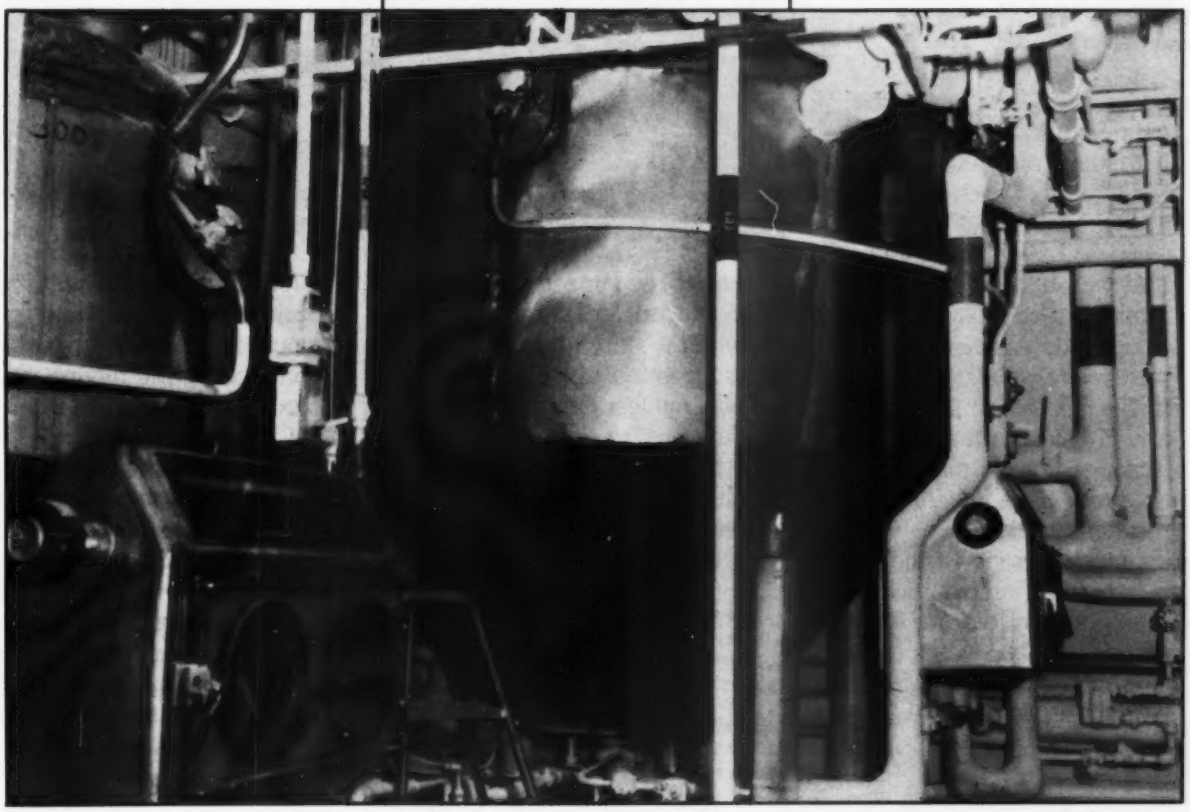
There is a commonly held misconception that our recent ratification of the 1925 Geneva Protocol removes any chemical threat to U.S. forces. The Protocol limits the use in

This article is based on the statement presented by Dr. Currie before the R&D Subcommittee of the Senate Armed Services Committee on April 21, 1975.

war of lethal chemicals but does not address the production and stockpiling of such weapons. The U.S.S.R., the United Kingdom, the People's Republic of China (P.R.C.), and now the United States among others, have found that their vital national interests require that they enter reservations to the Protocol preserving the right to retaliate with chemical weapons to a chemical attack. Thus, the Protocol actually prohibits only "first-use" of the weapons it covers.

Our intelligence estimates indicate that the U.S.S.R. and the Warsaw Pact represent a serious potential threat to U.S. forces in Europe and elsewhere. We believe that the U.S.S.R. is better prepared to operate offensively and defensively in a chemical warfare environment than any other nation in the world. The significance of finding large quantities of protective

Collection tank for liquid agents at the Pine Bluff Arsenal, Arkansas. Materials are piped to this tank, heat-treated, then transferred to other tanks for additional treatment.



equipment after the most recent Middle East war was evidence of the emphasis the Soviets are placing on improving their already impressive capability.

The objective of the U.S. chemical policy and program is to deter the use of chemical weapons by other nations and to have the capability to retaliate with chemical weapons should deterrence fail. Historically, the use of chemical weapons in war has been restrained by the threat of retaliation in kind and we believe such a retaliatory capability continues to serve as a deterrent today. The emphasis of our R&D programs is to provide the capability to warn of, withstand, and recover from the effects of a chemical attack against our forces.

Some have suggested that we abandon our retaliatory capability and adopt a defensive-only posture, relying upon our nuclear deterrent to deter any chemical attack as well. Reliance upon a nuclear deterrent risks lowering the nuclear threshold by denying an option which falls between conventional munitions and escalation to tactical nuclear weapons. The House Foreign Affairs Committee in its 1974

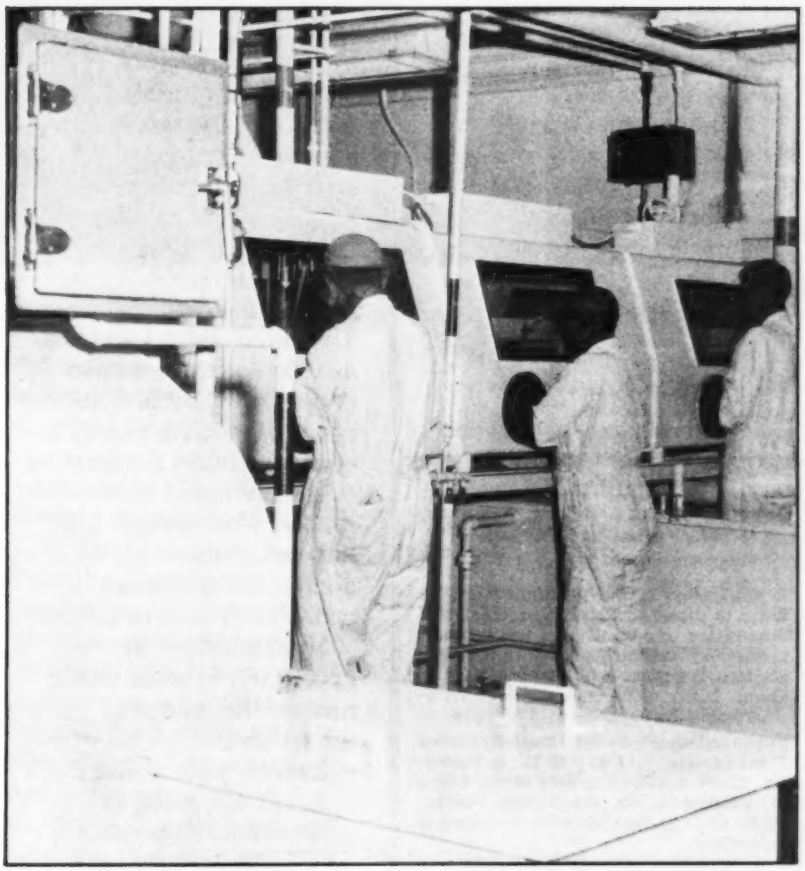
report recognized the significance of this position when it stated that the "suggestion of looking to U.S. nuclear capability as a deterrent to any CW first strike is an extreme alternative that would require full and careful review".

The risks inherent in a strategy which makes nuclear war more likely far outweigh the savings which would result from abandoning the binary modernization program.

Our research and development programs are designed to meet the above stated threat and to address identified deficiencies in our defensive posture. Our plan to meet these deficiencies is to:

- Continue the efforts in

Biological cabinet system (below), showing section where empty agent cans are flattened. The flattened cans are passed from the cabinets to dunk tanks (in foreground) filled with decontaminating solution. At left, carboys of agent inside cubicle from which samples were taken for verification of agent.



the technology base, investigating a number of concepts to provide a wide range of options in defense techniques for both chemical and biological materials and,

- Selectively pursue those promising concepts through development to production.

We are focusing our efforts on development of adequate warning and defensive equipment while encouraging our Allies to follow a similar course. Our

present programs are largely under single component management, by the U.S. Army. The Air Force has established a joint liaison office with the Army in order to utilize the basic technology developed by the Army to meet Air Force requirements. The Navy also participates in this joint effort.

Our biological research program is a totally defensive effort oriented primarily toward medical research for the development of vaccines, prophylactic and therapeutic drugs and other protective measures. We are developing a biological detection and warning system to alert our forces when they have been attacked by biological agents so that proper protective measures may be taken. A small effort in vulnerability assessment to biological attack is also maintained.

Modernization of the chemical munitions stockpile is needed if the U.S. is to maintain a limited, but credible, retaliatory capability to support present national policy. A new delivery system, referred to as the binary concept, has been developed to overcome the safety, storage, and transportation problems associated with lethal chemical agents. In the binary concept, two relatively low toxicity compounds are produced, packaged, stored, and shipped separately. Only when actually combined in a dissemination system do the two compounds mix, forming the chemical agent. The lethal agent formed is exactly the same as that presently available. This is not a new agent, merely a delivery system designed to overcome many of the problems associated with the earlier items and to update our retaliatory capability if deterrence fails.

Modernization by developing binaries would provide the following advantages:

- Limited potential hazards to storage areas and surveillance operations;

- Greater deployment flexibility because of safety and elimination of degradation of agent;
- Elimination of costly disposal program and reduced cost for production facilities;
- Ready modification to improved delivery systems.

In the technology base, we are investigating improved means of prophylaxis and therapy to

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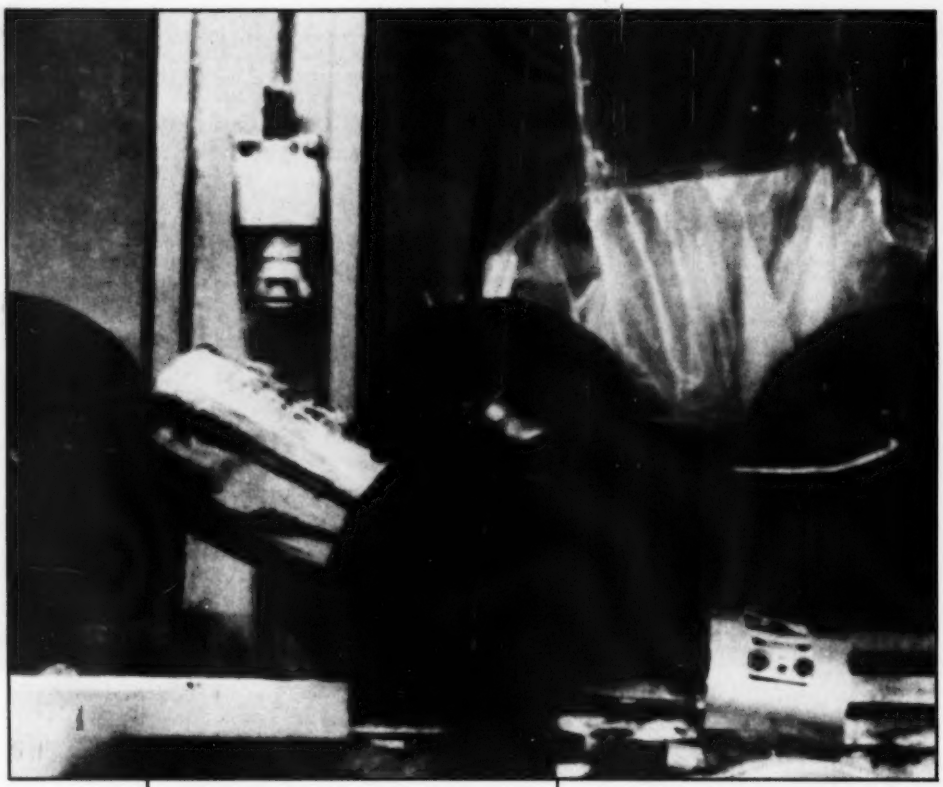
Outside view of cubicle in which agent is mixed with caustic.

protect against chemical agents. We are developing point-source detection and alarm systems, area scanning alarms, decontamination methods, protective clothing, masks, and other devices required for the physical protection of personnel and equipment. The screening programs to identify potential condidates for new agents continue. We are developing production methods and investigating new concepts for dispensing binary agents.

In the advanced technology area, where effort is end-item oriented, we have selected those items which show the most promise for improving the defensive posture of U.S./NATO Forces. We will continue development of area scanning alarms to provide advance warning of chemical attack and an active means of defending against such an attack. In the biological defense area we will develop efficient, cost-effective detection and warning devices together



A technician prepares frozen material for laboratory verification at the Pine Bluff Arsenal.

with vaccines and therapy for viral diseases. Concurrently, we will continue the development of binary weapons including the present two artillery rounds and an air delivered munition needed to modernize our retaliatory capability.

The key items in development are: improved prophylaxis and treatment for nerve agents, a skin decontamination system, a universal protective mask, an area scanning chemical alarm, a biological agent alarm, modular collective protection equipment, liquid agent detector paper, and a new chemical agent detector kit. To modernize our retaliatory capability we are developing a 155mm GB and an eight-inch VX artillery round and are proposing an effort to complete the aerially delivered BIGEYE VX binary bomb development discontinued earlier.

There are areas where new technology is still needed to improve our defensive posture. We need to develop protective clothing and support equipment that does not significantly degrade the performance of the individual soldier and to build reliable, cost-effective, large area alarms for both biological and chemical agent detection and warning devices. Manufacturing and process technology and logistics technology refinements are ancillary developments needed to field optimal defensive equipment. We have designs but no installed equipment to prove the defensive hardware developed for ships, tanks, and facility defense.

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